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ABSTRACT

The syllable structure of Dholuo, a Nilo-Saharan language spoken in Western Kenya, is analyzed according to the generative CV-phonology model, which assumes that the syllable has a three-tiered structure: syllable node; CV-tier; and segmental tier. The consonant and vowel repertoires of Dholuo are outlined and charted, and syllable peak patterns, short- and long-vowel occurrences, and diphthong patterns are described and illustrated. Syllable onset and coda characteristics are also outlined. Four syllable types existing in Dholuo are identified, and it is concluded that according to one classification of languages in terms of canonical syllable types, Dholuo can be categorized as a type 4 language. Contains 13 references. (MSE)

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THE DHOLUO SYLLABLE STRUCTURE

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Symbols

$	syllable boundary
#	word boundary
⌐	syllable node
C	consonant
V	vowel
S	sentence
~	is also realised as

1.1 The Language: Dholuo

The language known as Dholuo belongs to the Nilo-Saharan family of languages. The Nilo-Saharan family is divided into six branches. The Chari Nile, which is one of the six branches, is in turn divided into the Eastern Sudanic and the Central Sudanic. The Eastern Sudanic consists of ten branches including the Nilotic branch. The Nilotes are in turn divided into the Western, Eastern and Southern branches. Dholuo belongs to the Western Nilotic branch. Some of the languages also included in the Western Nilotic branch are Acholi, Lango, Alur, and Padhola. Speakers of the Western Nilotic branch of languages migrated from Sudan, their cradleland and settled in Kenya and Uganda (Ochieng" 1985). In this group, only Dholuo speakers settled in Kenya and the Northern part of Tanzania.

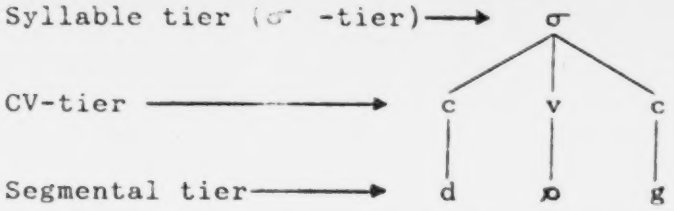
Dholuo speakers live in Nyanza Province in Western Kenya, along the eastern shores of Lake Victoria. Evans-Pritchand (1949), quoted by Cohen and Atieno-Odhiambo (1989:i) in describing the region occupied by members of this ethnic group, states that:

> The Luo of Kenya are a Nilotic people of some 500,000 souls bordering Lake Victoria Nyanza to the north and south of Kavirondo Gulf. Some outlying sections also stretch into Tanganyika. The parts of Luoland,e.g. Alego and Ugenya tribal areas, are undulating country...

1.2 Theoretical Framework

The theory used in the analysis of the Dholuo syllable structure is the Generative CV-Phonology Model of the syllable as propounded by Clements and Keyser (1983).They have designed the generative CV-phonology model to specifically deal with the syllable. This theory is useful because it accomplishes the task of stating universal principles governing syllable structure. This task is accomplished by the assumption that the syllable has a three-tiered structure which consists of the syllable node, the CV-tier and the segmental tier as shown in the figure below.

Figure 1: Representation of the Syllable Structure



This theory attempts to solve the doubt about placement of syllable boundary. Clements and Keyser (1983) have proposed the Onset First Principle to deal with the ambiguity concerning placement of syllable boundary. They state that the vowel element is associated with the syllable peak. In other words, the existence of the highest peak of sonority in each syllable is confirmed. A segment dominated by the C-element of the CV-tier is non-syllabic whereas one that is dominated by the V-element of the same tier is syllabic. Therefore the V-element contains the sonoroty peak. In a polysyllabic word what therefore should be explained is to which syllable node the C-elements are assigned in ambiguous cases. According to this principle:

(a) Syllable-initial consonants are maximised to the extent consistent with the syllable structure condition of the language in question.
(b) Subsequently, syllable final consonants are maximised to the extent consistent with the syllable structure of the language in question (Clements and Keyser 1983:37).

This means that in cases of ambiguity like in the word extra ([ɛk$strə] or [ɛks$trə]), initial consonant clusters take precedence over syllable final ones. They also seem to imply that the irregularity should be on the coda rather than the onset because in assigning consonants to the syllable node we begin with the onset rather than the coda. This theory has been used only as far as it helps us determine syllable boundaries.

1.3 Dholuo Consonants

The syllable is made up of consonants and vowels, consequently, they have been briefly discussed. There are twenty six consonants in Dholuo. These include five prenasalized consonants which function as unit phonemes, as shown in the table below. Digraphs have been used to represent the prenasalized consonants.

Consonantal Phonemes of Dholuo

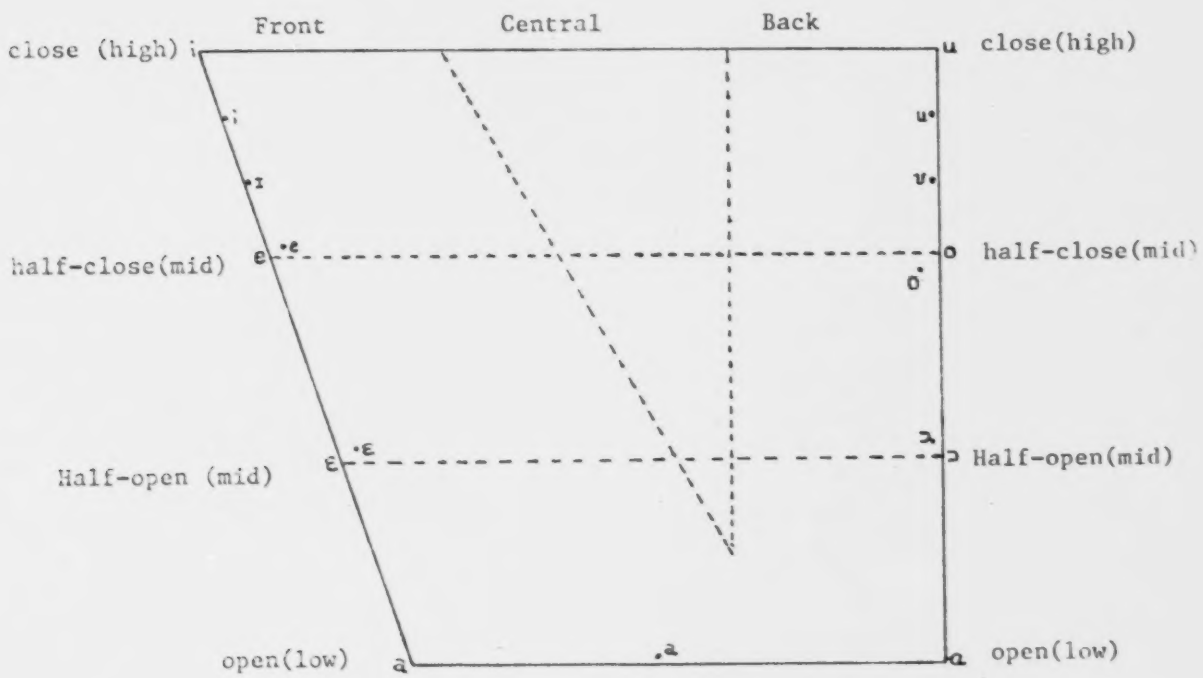
Manner of articulation \ Place of articulation →	Bilabial	Labio-Dental	Dental	Alveolar	Palatal	Labio-velar	velar	Glottal
Plosives	p b			t d	c ɟ		k g	
Affricates								
Fricatives		f	θ ð	s				h
Nasals	m			n	ɲ		ŋ	
Laterals				l				
Rolls (trills)				r				
glides					j	w		
Pre-nasalized stops	mb		nð	nd	ɲɟ		ŋg	

Partly adapted from Okoth-Okombo (1982a:19)

1.4 Dholuo Vowels

Dholuo has nine vowels. The vowels within the trapezium are Dholuo vowels, while the ones without are cardinal vowels.

Figure 2: A Trapezium Showing Dholuo Vowels



Adapted from Tucker and Bryan (1966:404)

1.5 Syllable Peak

1.5.1 Short Vowels

In Dholuo, there are vowels that constitute monosyllabic words. These words have neither an onset nor a coda. Some of these words are listed below:

Example 1

a [a] "to leave" , "an exclamation of doubt"

e [e] "at" ,"in" , "during" ,"to"

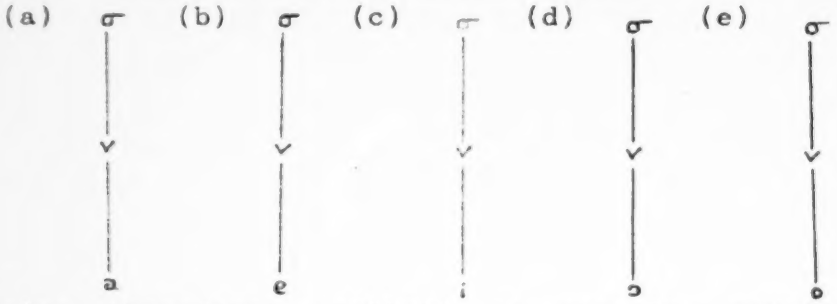
i [i] "to wrestle" , "an exclamation of disapproval"

o [ɔ] "to overflow"

o! [o] "an exclamation of suprise"

The words in Example 1 can be represented diagrammatically as follows:

Figure 3: Vowels Forming Monosyllabic Words



In Dholuo, therefore, a syllable can contain a vowel only. This is the peak (nucleus) and is the obligatory part of the syllable.

There are vowel sequences that form bisyllabic words. Below, are some of the words in this category.

Example 2

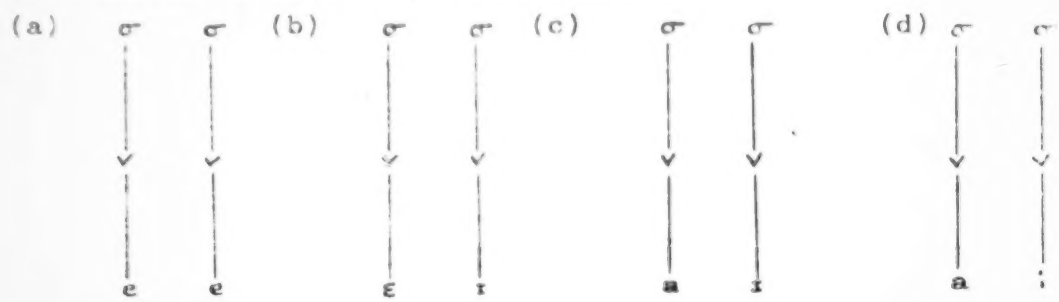
ee [ee] "here, take it"

ei [ɛɪ] "inside"

ai [aɪ] "leave" (command)

ai [ai] "I am wrestling"

Figure 4: Vowels Forming Bisyllabic Words



The two syllable nodes in each of the words in Figure 4 indicate that there are two syllables. The syllable does not branch in all the tree diagrams so far in this section. This means that in each of these syllables there is only one terminal constituent which is a short vowel.

Vowels form the peak of syllables in words with either an onset or a coda or both as illustrated diagramatically below.

Figure 5: Vowels Forming Syllable Peaks in Bisyllabic and Polysyllabic Words

(a) ewang'e "exactly" (b) okot "cowbell" (c) kidi "a stone"

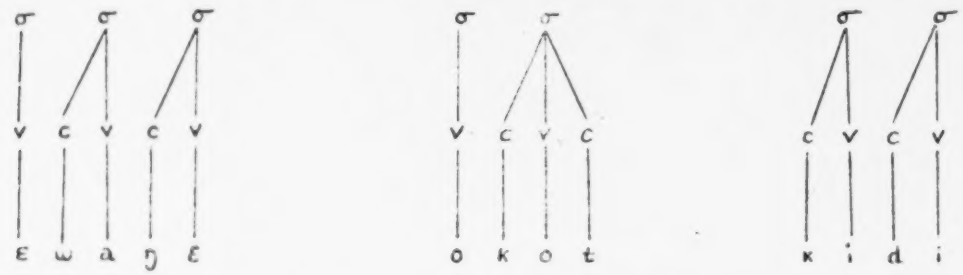


Figure 5 shows that Dholuo vowels occur both word initially and finally as well as syllable initially and finally. Therefore Hyman's (1975) view that word boundaries coincide with syllable boundaries in most languages is true for Dholuo, so far.

1.5.2 Long Vowels

Figure 1 shows that all Dholuo vowels are short. However there are certain situations in which long vowels occur. It has been argued that since Dholuo vowels are phonemically short, long vowels in certain words are manifestations of underlyingly short vowels that are lengthened by specific phonological processes (Odhiambo 1981). Some of these processes are compensatory lengthening and root lengthening. The former is not within the scope of this paper, therefore only root lengthening will be discussed. Root lengthening only takes place within the word. Okoth-Okombo (1982a:25) states that:

> Dholuo vowels are phonemically short. However, there is a rule which lengthens a vowel when it precedes one or no vowel at all in utterance-final position. This affected vowel is what we call the root vowel. In a consonant-final word, it is the last vowel; in a vowel final word, it is the second last vowel in a word.

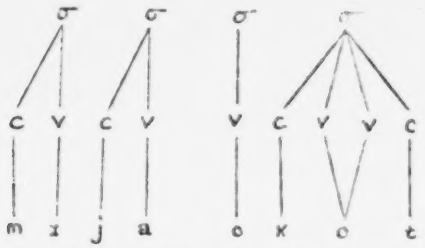
The rule for vowel root-lengthening is then stated as follows:

$$V \longrightarrow [+ \text{ long}] \; / \; ___ \; C'_2 \; V'_0 \; \# \; S$$

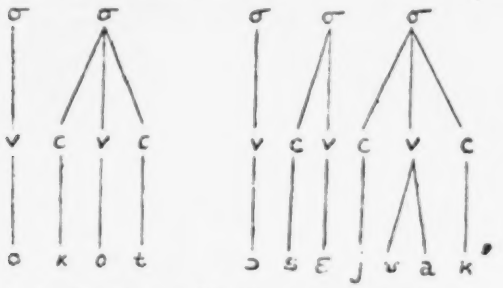
Figure 6 gives a diagramatic illustration of the syllable structure of a few words which have acquired long vowels as a result of root-lengthening.

Figure 6: Long Vowels

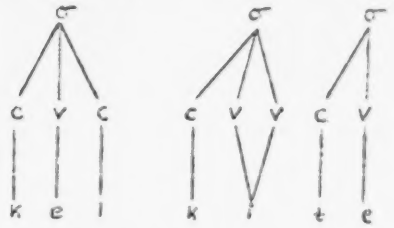
(a) (i) <u>miya okot</u> "give me the bell"



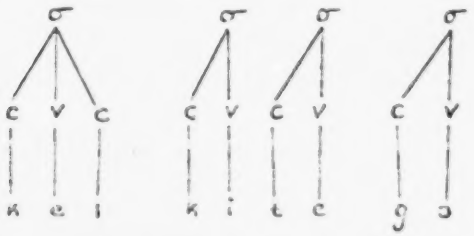
(ii) <u>okot oseyuak</u> "the bell has been rang"



(b) (i) <u>kel kite</u> "bring stones"



(ii) <u>kel kite go</u> "bring those stones"



In the two pairs of sentences in Figure 6, (ii) shows situations where the vowel remains short while (i) shows conditions under which the vowels are lengthened. In all the tree diagrams numbered (i) it is evident that root lengthening takes place in a word that occurs in utterance final position. Figure 6 (a) (i) shows that it is the last vowel that is lengthened in a consonant final word. Figure 6 (b) (i) shows that in a vowel final word, it is the second last vowel that is lengthened. Vowel length, in Dholuo, does not affect the meaning of the word,

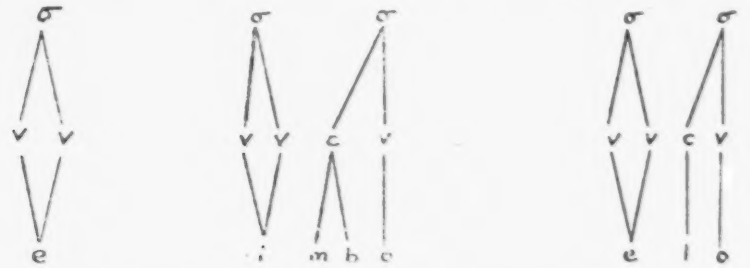
therefore we would argue that long vowels are allophones of the short ones.

Like Odhiambo (1981) it has been our observation that there are situations where the alternation between surface long vowels and underlying short vowels has been lost leaving only the occurrence of long vowels. Figure 7 gives examples of such situations.

Figure 7: Long Vowels

(a) u "puff adder" ([fu:] in Okoth-Okombo 1982a)

(b) e "yes" (c) imbo "west" (d) elo "to uncover"



In all situations where we have represented long vowels diagramatically, there is simultaneous association of one segment with two V slots. The long vowels are represented in this manner because they are geminate. In other words, the articulation of these vowels is held for the duration of two vowel beats. The vowels are lengthened or the same quality of a vowel is maintained over two V slots. These vowels have to be represented in this manner to show that they are different from the short vowels.

1.5.3 Diphthongs

Abercrombie (1970) in defining a diphthong states that in many languages certain vowel segments have a quality that is not constant. Their quality changes continually while the vowel is being produced. A diphthong could be a sequence of vowels or a

semi-vowel and a vowel. These sequences should occupy only one syllable. Abercrombie's definition clearly explains the nature of Dholuo diphthongs.

Like Odhiambo (1981) it has been our observation that Dholuo speakers are unable to create a distinction, in their pronunciation, between a sequence of two vowels and a sequence of a semi-vowel and a vowel (where the first vowel in the vowel-vowel sequence is high). We therefore conclude that a glide-vowel sequence and a vowel-vowel sequence are in free variation provided the vowel-vowel sequence begins with a high vowel.

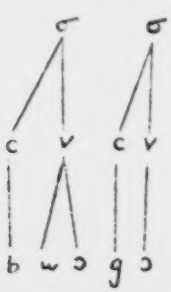
Odhiambo (1981) states that the diphthongs of Dholuo are represented as underlying a vowel sequence. She argues that if diphthongs are represented in this manner they not only fit in the entire phonemic structure of the language but also simplify the phonological structure of the language.

We shall not consider the underlying representation of diphthongs, but their surface representation (realization in speech). Figure 8 gives a diagramatic illustration of the syllable structure of words containing diphthongs. Each of the pairs in Figure 8 shows the different realizations of Dholuo diphthongs in speech.

Figure 8: Diphthongs

(a) Bwogo "to frighten"

(i)



(ii)

(b) puonjo "to teach"

(i)

(ii)

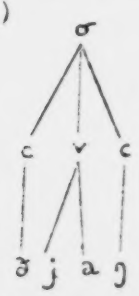
(c) miel "to dance"

(i)

(ii)

(d) dhiang "cow"

(i)



(ii)

All the words in Figure 8 have a vowel slot that is simultaneously associated with two segments. Diphthongs are represented in this manner because their qualities change. Therefore this change is reflected by the branching V node.

There is a single consonant onset in all situations where a glide-vowel sequence occurs in free variation with a high vowel-vowel sequence. The glottal stop /h/ does not precede the labio-velar semi vowel in the same syllable. /h/, /f/ and all prenasalized consonants do not precede the palatal semi-vowel /j/.

In the word yiengni [#jjeŋ $ni#], the first palatal semi-vowel functions as the syllable onset while the second one functions as part of the syllable peak. Some words in this category are listed below.

Example 4

yier [jjer] ~ [jier] "fur" or "hair"
yiech [jjɛc] ~ [jɪɛc] "to get torn"
yie [jje] ~ [jie] "ship"

There are also words in Dholuo with two labio-velar semi-vowels within one syllable. The first labio-velar in the sequence functions as the syllable onset while the second one functions as part of the syllable peak as in the following words.

Example 5

wuondo [wwo$ndo] ~[wuo$ndo] "to cheat"

wuoro [wwɔ$rɔ] ~[wuɔ$rɔ] "to be amazed"

wuoyo [wwo$jo] ~[wuo$jo] "to talk"

It should be made clear that vowel sequences that begin with a non-high vowel are different from the diphthongs discussed. These vowel sequences do not form a glide within the same syllable. Odhiambo (1981) states firmly that:

> A vowel sequence that begins with a non-high vowel... constitutes two syllables and cannot be realised as a diphthong.

The articulation of the first non-high vowel is completed before the articulation of the next vowel in the sequence begins. They may or may not have a consonant as the onset. This explanation can be elucidated by the diagram below.

Figure 9: Vowel Sequences Forming Two Individual Syllables

(a) aora "river" (b) maugo "tse tse fly"

In summary, the Dholuo syllable peak consists of either a short vowel, a long vowel or a diphthong. Only the word mm [ʔmʔm] "no" has a syllabic consonant. The voiced bilabial nasal /m/ appears to be syllabic in only this word. From this isolated case, we cannot claim that Dholuo has syllabic consonants.

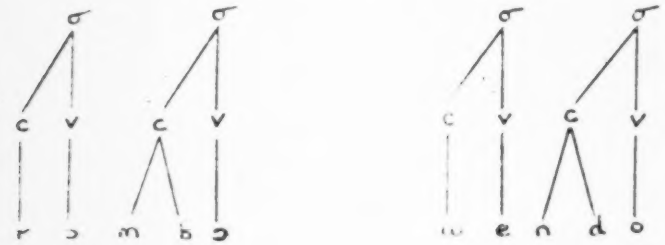
1.6 Syllable Onset

All Dholuo consonants including the prenasalised consonants are observed to occur word initially and therefore syllable initially. Figure 10 shows a few examples.

Figure 10: Single Consonant Onset

(a) pala "knife" (b) dongo "to grow up "

(c) rombo "sheep" (d) wendo "visitor"



In Figure 10 (b), (c) and (d) a single consonant slot is associated with two segments. This happens when a particular sound has two phases of articulation. Such sounds are said to be complex. Katamba (1989:171) notes that:

> Many languages have prenasalized consonants which, like the complex segments..., do show sequential organization of features at the subsegmental level.

Prenasalized consonants have been represented as complex segments because they function as unit phonemes in Dholuo. More important when prenasalized consonants are represented as complex segments, it helps to clearly illustrate that they are different from the clusters found in languages like English, where a nasal precedes another non-nasal consonant in word final or syllable final position.

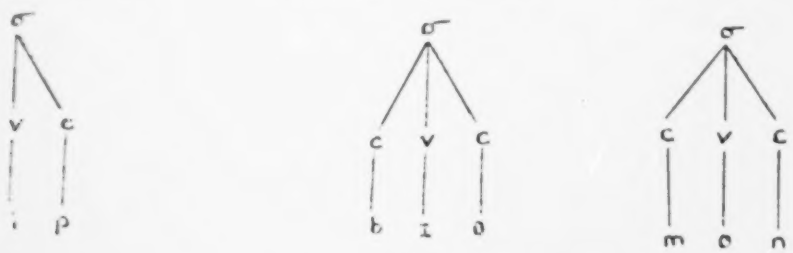
The Dholuo syllable therefore consists of a maximum of one consonant as the onset.

1.7 Syllable Coda

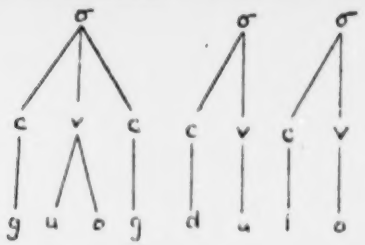
A single consonant can terminate or occupy a post nucleus position in the Dholuo syllable. Dholuo consonants are capable of closing syllables except /b/ and /h/. Figure 11 gives a few examples of the structure of the Dholuo syllable coda.

Figure 11: Single Consonant Coda

(a) ip "tail" (b) bith "sharp" (c) mon "women"

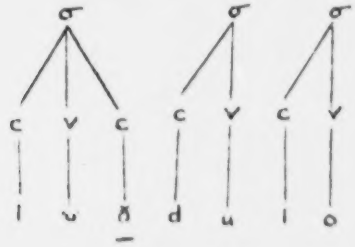


(d) guog Dulo "Dulo's dog"

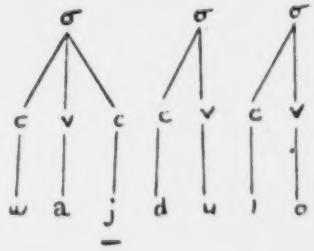


(e) baf "bathroom"

(f) ludh Dulo "Dulo's stick"



(g) way Dulo "Dulo's aunt"



The voiceless labio-dental fricative /f/ never used to occur in word or syllable final position of Dholuo words. However at present it occurs in loan words as shown in Figure 11 (e). There are consonants that occur only in syllable final position in the genetive forms of certain words. Such consonants have been underlined in Figure 11. Okoth-Okombo (1982a) states that the consonant /c/ becomes /j/ or zero in the final position of genetive forms of words containing the former sound as the last element. The consonant /j/ is rare in syllable final position. Odhiambo (1981:87) gives the examples which Okoth-Okombo (1982a) also gives as follows:

Norminal Singular	Genetive Singular
wic	wi / wij "head"
ɪc	ɪ /ɪj "stomach"
kec	ke / kej "hunger"

The back glide /w/ therefore occurs freely in both initial and final positions in the syllable unlike the front glide /j/ whose occurrence in syllable final position is restricted.

All the consonants discussed in this section occur syllable finally in word medial position. No clusters of two or more consonants occurred in syllable final position. This means that there can only be a maximum of one consonant or just an empty coda position in the Dholuo syllable. The conclusion is

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also confirmed by an examination of word medial clusters. In word medial position, there is a maximum of two phonemes functioning as consonants. The first consonant is a syllable final consonant while the second one a syllable initial consonants as shown in Figure 12.

Figure 12: Single Consonant Coda, Word Medially

(a) chalre "similar" (b) winjgi "listen to them"

1.8 Conclusion

In summary the syllable types that exist in Dholuo are listed below.

(a) V

(b) CV

(c) VC

(d) CVC

According to Clements and Keyser's (1983:29) classification of languages in terms of canonical syllable types, Dholuo belongs to Type 4.

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